

# Patent Abstracts of Japan

PUBLICATION NUMBER : 2002357127  
PUBLICATION DATE : 13-12-02

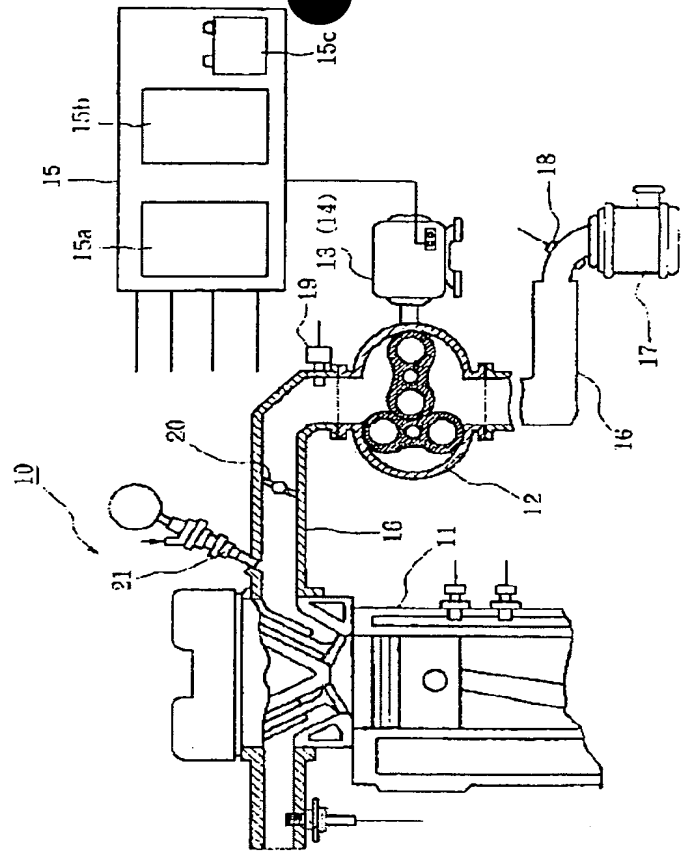
APPLICATION DATE : 30-05-01  
APPLICATION NUMBER : 2001161934

APPLICANT : ISHIKAWAJIMA HARIMA HEAVY IND  
CO LTD;

INVENTOR : SHIBUI YASUYUKI;

INT.CL. : F02B 39/10 F02B 33/36 F02D 29/00  
F02D 29/06

TITLE : INTERNAL COMBUSTION ENGINE  
PROVIDED WITH DISPLACEMENT  
TYPE SUPERCHARGER



**ABSTRACT :** PROBLEM TO BE SOLVED: To provide an internal combustion engine provided with a displacement type supercharger capable of supercharging when torque increase by supercharging is necessary and improving the efficiency in an operation condition in which supercharging is unnecessary.

**SOLUTION:** This internal combustion engine provided with the displacement type supercharger is provided with the displacement type supercharger 12 provided in an air intake passage 16 of the internal combustion engine 11, an electric motor-generator 13 which is driven by an electric motor driving the displacement type supercharger or the supercharger 12 to be used as a power generator, and a controller 15 controlling in such a way that the electric motor-generator 13 is driven by the electric motor for supercharging or power is generated by the generator to recover electric power by a pressure in the air intake passage 16 generated depending on an operation condition of the internal combustion engine 11. The electric motor-generator 13 is controlled by the controller 15. When torque increase and output increase are required, it is driven by the electric motor for supercharging. The power generator is driven by the supercharger due to a suction force of the internal combustion engine 11 when performing low load operation to recover electric power and improve the efficiency.

COPYRIGHT: (C)2003,JPO